



**UNITED STATES DEPARTMENT OF COMMERCE
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SERIAL NUMBER	FILING DATE	EATON	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.

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NATALIE D KADIEVITCH
BRINKS HOFER GILSON AND LIONE
PO BOX 10395
CHICAGO IL 60610

PATEL, M EXAMINER	
ART UNIT	PAPER NUMBER
04/09/98	

DATE MAILED:

Please find below a communication from the EXAMINER in charge of this application.

Commissioner of Patents

Office Action Summary

Application No.
08/807,621

Applicant(s)

Eaton et al.

Examiner

Maulin Patel

Group Art Unit

3305



☒ Responsive to communication(s) filed on Feb 27, 1997

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) 1-8, 11, 12, and 16-73 is/are pending in the application

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-8, 11, 12, and 16-73 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 5

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

Art Unit: 3305

DETAILED ACTION

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Specification

2. The disclosure is objected to because of the following informalities: On page 8 of the disclosure, there are blank spaces with regard to prior art.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 20 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards

Art Unit: 3305

as the invention. The term "automatically" in claims is a relative term which renders the claim indefinite. The term "automatically" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. Claims 1 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Hamilton et al. Multiple transmit beamformers and receive beamformers are inherent when multiple transducer arrays are used.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3305

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2-6, 8, 11-12, 16, 25-28, 32-45, 48-59, 68-69 and 72-73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton et al., in view of Liang et al. Hamilton et al., discloses the claimed device except for the use of at least one transducer in the catheter. Liang et al. discloses that it is known in the art to provide a "one or more transducers" of different array configurations (column 3, line 35). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the catheter of Hamilton et al., with the use of multiple transducers of Liang, in order to allow for different imaging formats to produce a two-dimensional image.

9. Claims 17-24, 29-31, 46-47, 60-67, and 70-71 rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton et al., in view of Ueno et al., in further view of Yock and in further view of Tenhoff or Rosenfield et al. Hamilton et al., discloses the claimed device except for processing data for tracking, processing data for intravascular two-dimensional imaging and for reconstructing a three dimensional image. Ueno et al., discloses that it is known in the art to provide a processing system for tracking motion in two dimensions (figure 76). Yock discloses that it is know in the art to provide intravascular two-dimensional imaging (column, line 30). Tenhoff or Rosenfield et al., discloses that it is known in the art to reconstruct three-dimensional images from two-dimensions. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the catheter of Hamilton et al., with the tracking

Art Unit: 3305

system of Ueno et al., and with two-dimensional imaging system of Yock and further with the construction of three-dimensional images of Tenhoff or Rosenfield et al., in order to produce a catheter that is able to accurately provide information of intravascular structure.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure are:

Nassi et al., teaches measuring volumetric blood flow.

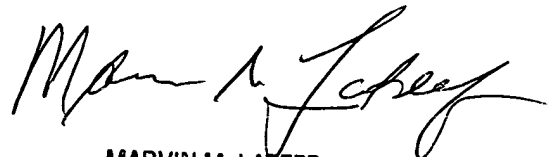
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maulin Patel whose telephone number is (703) 305-6933. The examiner can normally be reached on the weekdays from 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marvin Lateef, can be reached on (703) 305-3256. The fax phone number for this Group is (703) 308-0131.



Maulin Patel

March 19, 1998



MARVIN M. LATEEF
SUPERVISORY PATENT EXAMINER
GROUP 3300